REMARKS

The Office action of September 14, 2010, has been carefully considered.

Claims 25-29, 32-35, 39 and 41 stand rejected under 35 USC 103(a) over Freedman et al in view of Arvidson, while Claims 36-38 stand rejected under 35 USC 103(a) over Freedman et al in view of Arvidson and Nagai et al, and Claims 30, 31, 40, and 42-45 stand rejected under 35 USC 103(a) over Freedman et al in view of Arvidson and further in view of Mackintosh et al.

Claim 25 has been amended to incorporate the recitations of Claim 35, which has been canceled, and now recites that the silicon containing particles of irregular geometry are selected the group consisting of fragments of CVD polysilicon rods, fragments of multicrystalline blocks, fragments of silicon single crystals, and pieces of silicon single crystals, fragments of monocrystalline or multicrystalline wafers and mixtures thereof.

When irregular silicon particles are transported by gas through a pipe having a curve or a kink (which should be read as a bend), the particles which frequently have a length close to that of the pipe diameter tend to get stuck. In order to maintain the flowability of the irregular particles through the pipe, Applicants have discovered that it is advantageous to admix the irregular particles with regular particles, typically of spherical or elipsoid geometry.

Freedman et al discloses transport of particles through pipes 90 and 60 utilizing gas, in a manner similar to that of the invention. Between the two pipes there is a receiving chamber 82. The Office Action appears to take the position that receiving chamber 82 is a pipe. A pipe is known to be a hollow *cylinder*. While the receiving chamber is a hollow

chamber, it is difficult to determine exactly what shape the receiving chamber is, and Applicants submit that one of ordinary skill in the art would not recognize this structure as being a pipe. To the contrary, one of ordinary skill would observe that the receiving chamber it is not *cylindrical* (having a surface formed by the points at a fixed distance from a given straight line, the axis of the cylinder).

According to Freedman et al, silicon particles can be spherical silicon beads or irregularly shaped silicon particles having specific dimensional characteristics.

Freedman et al does not disclose or suggest mixing regularly shaped and irregularly shaped particles and does not disclose or suggest that there could be any advantage in transport by mixing such particles. Indeed, since neither pipe 60 nor 90 has a curve or bend, there would not be any problem transporting irregularly shaped particles through the pipes.

While Freedman et al does not disclose or suggest mixing the regularly shaped and irregularly shaped particles, Arvidson does disclose a mixture of regularly shaped and irregularly shaped particles, but it is a static mixture formed in a crucible and not transported, and is not a random mixture as would be formed by mixing the particles and transporting them by gas flow. Arvidson teaches placing a concentric array of cut rods of a generally polygonal shape into a crucible, and stacking around and thereon irregularly shaped pieces of polycrystalline silicon. By doing so, it is possible to densely pack the silicon in the crucible by filling the voids between the cut rods. The packed particles remain stationary in the crucible for melting, and transport of a mixture of regular and irregular bodies through a pipe or pipe system is not suggested.

The Office Action appears to take the position that it would be obvious based on Arvidsen to mix the particles in the

process of Freedman et al to achieve higher density. There is however, no suggestion that higher density would be achieved in a random mixture of particles, which would be the result of mixing followed by transporting in a gas stream.

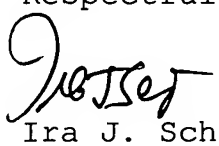
There is therefore, no suggestion of substituting the mixture of particles taught by Arvidson in the system for replenishing the melt of Freedman et al, since mixing the particles *upstream of the crucible in gas transport* would not be expected to form a denser packing of the particles, the only reason to form the mixture according to Arvidson.

Regarding the other references, Nagai et al does not disclose or suggest a pipe with a bend or a curve, but relates to an apparatus capable of feeding a predetermined amount of doping. The pipe is straight, with two sections of constant diameter. Mackintosh et al deals with an EFG crystal growth apparatus, but also does not suggest the invention, or cure the defects of Freedman et al or Arvidson.

Withdrawal of these rejections is requested.

In view of the foregoing amendments and remarks, Applicants submit that the present application is now in condition for allowance. An early allowance of the application with amended claims is earnestly solicited.

Respectfully submitted,



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